

Space Weather Forecast

Issued on Thursday, 12 May 2022 at 13:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: R1-R2 radio blackouts likely.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with a Moderate class flare around 11/1859 UTC. This event consisted of a long period flare from a region from around the western hemisphere combined with a short flare from AR3007. Two coronal mass ejections have been detected from this event, one from each flare, analysis suggests no ejecta is Earth directed. There are currently four numbered sunspots on the visible disk, with new regions now emerging on the eastern limb. There are two large and complex spots in the south, one of which is showing signs of increased complexity. There are also two small and simple spots in the northern hemisphere, these mirroring the longitudes of the larger spots to the south.

Solar Wind / Geomagnetic Activity: The solar wind has remained at slow-ambient speeds. Total interplanetary magnetic field strength was weak to moderate. The important north-south component was also weak to moderate. Geomagnetic activity has been Quiet throughout (Kp 1-2).

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Moderate with further R1 or R2 radio blackouts with a slight chance of it perhaps briefly raising to High (R3) activity.

Solar Wind / Geomagnetic Activity: No significant enhancements are expected in solar winds in the next 4 days, though there remains an uncertain chance of activity during day 1 or 2 (12 or 13 May) during any long periods where the Earth's magnetic field points south. Therefore, geomagnetic activity is currently expected to be mainly Quiet (Kp 0-2) with Unsettled (Kp3) periods and a slight chance of Active (Kp4) intervals on days 1 and 2 (12th and 13th).

Energetic Particles / Solar Radiation: Solar radiation (high energy protons) are currently not expected to exceed thresholds over the next 4 days.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	5	2	2
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	60	60	50	50
Very Active	R3 to R5 X	No	15	15	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	1	1	2	3
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)